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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/590,776

06/12/2007

Takayuki Mori

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2461

22852

7590

02/02/2009

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EXAMINER

VANOY, TIMOTHY C

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

02/02/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/590,776	<b>Applicant(s)</b> MORI ET AL.	
	<b>Examiner</b> TIMOTHY C. VANOY	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>See Continuation Sheet</u> .                                  | 6) <input type="checkbox"/> Other: _____                          |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :12-05-2008; 07-22-2008 & 08-25-2006.

## DETAILED ACTION

### *Priority*

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Information Disclosure Statement*

The information disclosure statement filed on Dec. 5, 2008 does not fully comply with the requirements of 37 CFR 1.98(b) because none of the foreign patents identify the country that the patents are issued in (also, the Applicants should provide a document kind code for each of the references, i. e. "A", "C". etc.). Since the submission appears to be *bona fide*, Applicants are given **ONE (1) MONTH** from the date of this notice to supply the above mentioned omissions or corrections in the information disclosure statement. NO EXTENSION OF THIS TIME LIMIT MAY BE GRANTED UNDER EITHER 37 CFR 1.136(a) OR (b). Failure to timely comply with this notice will result in the above mentioned information disclosure statement being placed in the application file with the noncomplying information **not** being considered. See 37 CFR 1.97(i).

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 1793

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

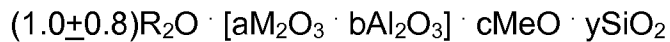
The person having ordinary skill in the art has the capability of understanding the scientific and engineering principles applicable to the claimed invention. The references of record in this application reasonably reflect this level of skill.

Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Pat. 6,080,376 to Iida et al. in view of U. S. Pat. 5,658,546 to Kobayashi et al. and U. S. Pat. 5,591,414 to Jacob et al.

Col. 2 Ins. 4-37 in the Iida patent describes a system and method for removing nitrogen oxides out of an exhaust gas by catalytically reacting the nitrogen oxides in the

Art Unit: 1793

exhaust with injected ammonia over a denitration catalyst and then passing the exhaust gas (which contains some residual, unreacted ammonia) over an ammonia decomposition catalyst which is a crystalline silicate represented by the formula:



where M denotes at least an element selected from Group VIII and the silicate also contains at least one metal selected from the group consisting of platinum, palladium, ruthenium, iridium and rhodium as an active metal. *This crystalline silicate is not seen to be distinct from the Applicants' "second reaction part for oxidatively decomposing ammonia . . . with. . . a noble metal and a silica-alumina type complex oxide".*

The difference between the Applicants' claims and this lida patent is that lida's denitration catalyst contains vanadium (please see Example 1 in the lida patent), whereas the Applicants' claims expressly exclude vanadium as part of their denitration catalyst.

In lida's "Description of Related Art" set forth in col. 1, lida describes what appears to be a prior art denitration catalyst that is a titanium oxide-based catalyst containing (either) vanadium, tungsten **or** molybdenum as the active component, *which meets all the requirements of the Applicants' denitration catalyst and also doesn't require vanadium.*

In the event that the Applicants wish to argue that this prior art denitration catalyst somehow actually does contain vanadium, the examiner cites U. S. Pat.

Art Unit: 1793

5,658,546 to Kobayashi et al. which teaches the use of a titania-tungsten oxide catalyst useful for the same denitration: please see the abstract.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made *to have modified* the process and apparatus described in the lida patent *by substituting* the "vanadium-free" titania-tungsten oxide catalyst of the Kobayashi et al. patent *in lieu of* the "vanadium-containing" denitration catalyst of the lida patent, in the manner that arrives at the Applicants' claims, **because** such substitution of one known functional equivalent in lieu of another known functional equivalent (both of which are useful for the same purpose) is submitted to be *prima facie* obvious.

The difference between the Applicants' claims and the lida patent is that certain of the Applicants' claims require that the catalyst also contains sulfur or phosphorus: Applicants' claim 2, for example.

U. S. Pat. 5,591,414 to Jacob et al. in its description of the Prior Art set forth in col. 1 Ins. 7-31 describes a prior art catalyst for purifying the exhaust gas emitted from a diesel engine (which appears to be the same exhaust gas that the Applicants' treat) which is a solid acid catalyst that comprises partially sulfated and/or phosphatized carrier material, and the catalyst has the noted capability of removing any hydrocarbon and/or organics that may be present in the exhaust gas.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made *to have modified* the process and apparatus of the lida patent *by selectively including* the sulfur and/or phosphorus taught in col. 1 Ins. 7-31 in

Art Unit: 1793

the Jacob patent *into* the denitration catalyst of the Iida patent, in the manner required by the Applicants' claims, **because** of the suggested advantage of the sulfur and/or phosphorus to promote the removal of any organics and/or hydrocarbons; particulates and/or sulfur compounds that may be present in the exhaust gas, as fairly suggested in col. 2 lns. 20-35 in the Jacob patent.

### ***References Made of Record***

The following additional references from the examiner's search are made of record:

US 2008/0292519 A1 disclosing a catalyst comprising platinum, a second metal from either Group VB, VIIB, VIIIB, IB or IIB of the periodic table, a refractory metal oxide and a zeolite useful of abating ammonia in exhaust gas (please see the abstract), and

US 2008/0095682 A1 disclosing the use of Ce-Zr-R-O catalysts for abating NO<sub>x</sub> in exhaust gas (please see the abstract).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIMOTHY C. VANOY whose telephone number is (571)272-8158. The examiner can normally be reached on Mon-Fri 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Art Unit: 1793

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Timothy C Vanoy  
Primary Examiner  
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